

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
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Work Order ID 145857

Tuesday, June 07, 2016 9:14:55 AM

145857

Page 2

Item ID: D3847-1

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Wearpad

Start Date: 5/4/2016

Start Qty: 30.00

30

Cust Item ID:

Required Date: 5/7/2016

Req'd Qty: 30.00

30

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

130

130

Brake NC

Memo

0.20

2.40

DAS
30
9-89

30

JUL 11 2016

Brake NC

Form as per dwg

140

140

QC

QC5- Inspect part completeness to step on W/O

Memo

0.00

0.60

30

DAS
30
9-89

JUL 11 2016

Quality Control

150

150

autoweld 1

Weld per dwg & QSI004 4.5

Memo

0.00

2.40

30 16-7-12

Automated Welding 1

Weld hardcoat as per dwg
A/R 8259 Batch: M134625

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Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start

NR1

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

160

QC5- Inspect part completeness to step on W/O

0.00

160

QC

Memo

0.60

Quality Control

30DAS
38
9-89

JUL 14 2016

170

QC10- Inspect visual per QSI004- ground welds

0.00

170

QC

Memo

0.60

Quality Control

30DAS
38
9-89

JUL 14 2016

193

0.00

193

HandFinish

Memo

7.20

Hand Finishing

30DAS
41
9-89

16-7-18

APPLY TEXTURE COATING ON TOP CONCAVE SURFACE AS PER DWG

TEXTURE COATING BATCH: 134811

DQA: _____ Date: _____



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Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
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Past Expiry Date ☐	Manufacturing Process ☐	OTHER :							
Misidentified ☐	Past Due ☐								

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N900040100

Setup Start *NS1*

Stop *NS2*

Cust Item ID:

Start Date: 5/4/2016 **Start Qty:** 30.00

30

Required Date: 5/7/2016 **Req'd Qty:** 30.00

30

Customer:

Reference:

Approvals: _____ **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

**Insp.
Stamp**

QC3- Inspect Part Finish

0.00

196

QC

Memo

0.30

Quality Control

DAS

38

9-89

JUL 19 2010

200

Identify as per dwg & Stock Location: 17-001 0.00

0.00

200

Packaging

Memo

0.30

Packaging

LOCATION : FP001

210

QC21- Final Inspection - Work Order Release	0.00
---	------

0.00

210

QC

Memo

3.00

Quality Control

**DAS
21
9-89**

JUL 19 2016

Em 16/07/19

DQA: _____ Date: _____



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Misidentified ☐	Past Due ☐																																																																

Picklist Print

Tuesday, June 07, 2016 9:14:54 AM

Page 1

Work Order ID: 145857

145857

Parent Item: D3847-1

D3847-1

Parent Item Name: Wearpad

Start Date: 5/4/2016

Required Date: 5/7/2016

Start Qty: 30.00

Required Qty: 30.00

Comments: IPP RevA: New issue DD verified by:EC
14.11.25 AS PER DWG REV.C DD VERF:JLM IPP REV:C 16.03.31
AS PER DWG REV.D DD VERF:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D3847-1P		Purchased	No				Each	0.0000		30			
D3847-1P									**				
Wearpad													
M304S16GA		Purchased	No			100	sf	102.1908	0.1236	3.903159			
M304S16GA									**				
304/316 Sheet .063													

Location

Loc Qty

Loc Code

MAT010

12.97

m134677

12.97

MAT019

1.6

m134551

1.6

TPI

87.620844

m134604

87.620844

DAG 6 9-89 JUL 01 2016
DAG 12 9-89
AUG 02 2016

DQA: _____ Date: _____



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Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐							
		OTHER : _____							

DQA: _____ Date: _____

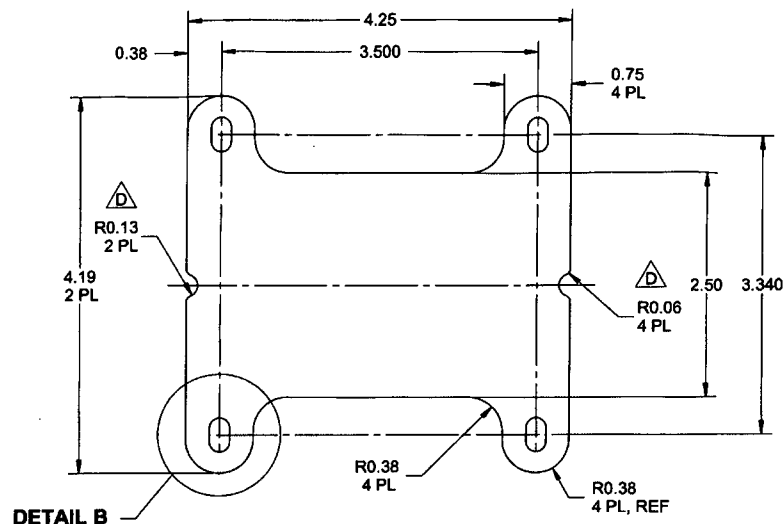


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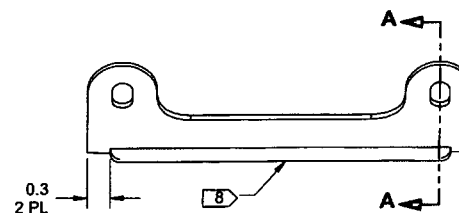
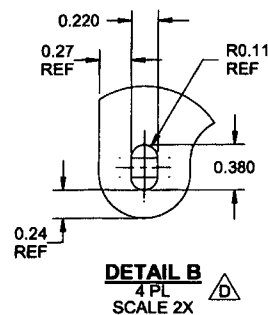
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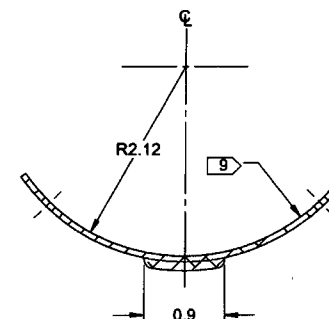
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Misidentified ☐	Past Due ☐								



D3847-1F WEARPAD
(FLAT PATTERN)



D3847-1 WEARPAD
(MAKE FROM D3847-1F)



SECTION A-A

- NOTES:**
- 1) MATERIAL -1F: AISI 304/316 STAINLESS STEEL 16 GAUGE 0.063 THICK
PER MIL-S-5059 OR AMS 5513 OR 5524 OR ASTM A240 OR ASME SA240
REF DART SPEC. M304S16GA
 - 2) FINISH: NONE
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
 - 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
 - 7) WEIGHT: 0.23 lbs
 - 8) BUILDUP HARD SURFACING 0.17 TO 0.20 THICK USING 8259 ROD PER QSI 004 SECTION 4.5 (AUTOMATED WELDING) OR
BUILDUP HARD SURFACING 0.19 TO 0.25 THICK USING 2059B ROD PER QSI 004 SECTION 4.1 (MANUAL WELDING)
 - 9) COAT ENTIRE TOP (CONCAVE) SURFACE WITH TEXTURED COATING 0.02-0.04 THICK PER DART QSI 005 4.9

RELEASED
2016-03-31
EN 16-554

APPROVED

D	UPDATE NOTES FOR AUTOMATED WELDING. UPDATE CURRENT DRAWING STANDARDS AND TOLERANCES. REMOVE FINISH; ADD TEXTURED COATING NOTE. UPDATE MATERIAL NOTES. -3F, -5F, -7F & -9F SIDE VIEW REMOVED. 3B7, 7B2, 7B1 REMOVED 0.080 DIMENSION. D81, D81, 8C7, 8C5, R0.13 TOOLING NOTCHES ADDED, ACCORDINGLY 8C2, 0.2 DIM WAS 0.05 (MANUFACTURING REQUEST).	AJS	15.09.28
C	REMOVED D3848-3/-5/-7/-9 GASKETS. ZN D2-1. ADDED TEXTURED COATING, ZN B3-1. UPDATED WEIGHTS, ZN C3-1/A8-2	AK	14.08.06
B	CORRECT TYPO D3847-047 WAS D3847-045. ZN B5-1; 5.82 WAS 6.25 (ZN A4-2); 45.28 WAS 45.71 (ZN B4-5)	RF	09.06.30
A	NEW ISSUE	RF	09.03.30
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	DART AEROSPACE USA, INC. EUGENE, OR	
DRAWN	AJS		
CHECKED	ML	DRAWING NO.	REV. D
MFG. APPR.	DD	D3847	SHEET 1 OF 7
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	WEARPLATE ASSY	NTS
DATE	15.09.28	COPYRIGHT © 2009 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

DQA: _____ Date: _____

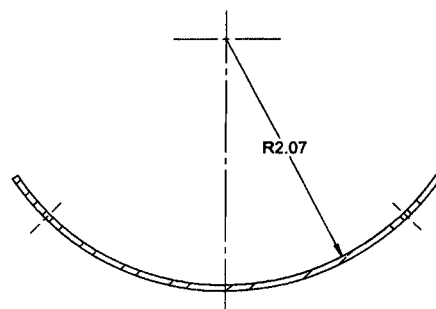


WORK ORDER NON-CONFORMANCE / UPDATE

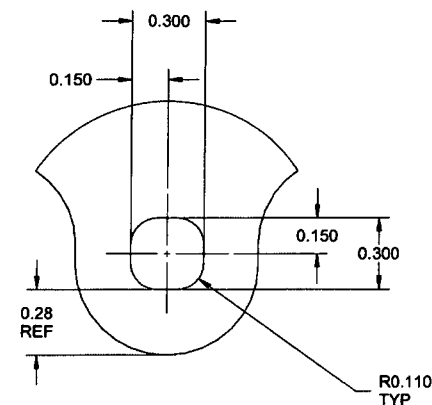
QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS <table style="width: 100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>				Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																																	
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OTHER :																																																																					



SECTION C-C
SCALE 4X
C3-2
C4-3
C3-4
C2-5



DETAIL D
SCALE 4X
B5-2
B6-3
B3-4
B4-5

RELEASED
2016-03-31

APPROVED

DESIGN	RF	DART AEROSPACE USA, INC.	
DRAWN	AJS	EUGENE, OR	
CHECKED	ML	DRAWING NO.	REV. D
MFG. APPR.	DD	D3847	SHEET 7 OF 7
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	WEARPLATE ASSY	NTS
DATE	15.09.28	COPYRIGHT © 2000 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval	
Description Work Order Deviation				Disposition				Completed By	
Root Cause				FAULT CATEGORY					
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Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

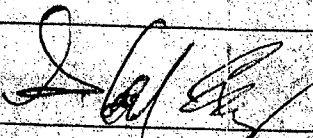
TPI Waterjet cutting follow up sheet

WC100128

machine hours	1204h
diamond hours	134h
mixing tube hours	0h
TAJ calibration	13-06-2016

customer po	part #	Qty	lot #	date done	cut by	quality spot check	Note
dart 32646	D-3847-1	90	see mill test	27/06/2016	GR	Jonathan Lessard Gabriel Rioux	
dart 32646	D-3537-1	40	see mill test	27/06/2016	GR	Jonathan Lessard Gabriel Rioux	
dart 32646	D3564-13	12	see mill test	28/06/2016	GR	Jonathan Lessard Gabriel Rioux	.188 hole need to be drill due to tight tolerance and taper in thin material in @ .188 and out @ .175

Opérateur



Superviseur



T.P.I. INDUSTRIES INC.

148 GOODFELLOW
DELSON, QUÉBEC J5B 1V4
CANADA
Tel: (450) 633-0484
Fax: (450) 633-0879

Packing Slip

Packing Slip No.: 7652
Date: 2016-06-29
Page: 1

Sold to:		Ship to:	
Dart Aerospace Chantal Lavoie 1270 Aberdeen Hawkesbury, Ontario K6A 1K7 Canada		Dart Aerospace Chantal Lavoie 1270 Aberdeen Hawkesbury, Ontario K6A 1K7 Canada	
Order No.: 32646		Sold By:	
Shipped By:		Ship Date: 2016-06-29	
Tracking No.:			

Item No.	Unit	Description	Quantity
d2281	Chaque	d2281 jack saddle ✓	30
d2585	Chaque	d2585 latch clamp ✓	40
d3847-1	Chaque	d3847-1 ✓	90
d3537-1	Chaque	d3537-1 wearpad ✓	40
d3564-13	Chaque	d3564-13 ✓	12

16/7/4
SL

Comment: Net / 30 from date of invoice 2% svc. chg. on invoices over 30 days



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO32646**

Purchase Order Date 6/8/2016

PO Print Date 6/8/2016

Page Number 2 of 12

Order From :

TPI INDUSTRIES INC.
148 RUE GOODFELLOW
DELSON, QUEBEC J5B 1V4
CANADA

VC-TPI001

Ship To : DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name

Vendor Phone 450-633-0484

Ship To Contact

Ship To Phone

Ship Via:

Ship Acct:

Buyer

Customer POID

Customer Tax # 10127-2607

Terms Net 30

Currency CAD

FOB Destination-Collect

3	D3847-1P	Wearpad	6/22/2016 Yes 6/22/2016	30.00 Each	\$5.45	\$163.50
CUT AS PER DWG D3847-1 REV. D B145857 MATERIAL 304 SHEET 16GA						Line Total: \$163.50
4	D3537-1P	Wearpad	6/22/2016 Yes 6/22/2016	40.00 Each	\$5.25	\$210.00
CUT AS PER DWG D3537-1 REV. E B146064 MATERIAL 304 SHEET 16GA						Line Total: \$210.00
5	D3564-13P	Wearplate Aft	6/22/2016 FN Yes 6/22/2016	12.00 Each	\$8.19	\$98.28
CUT AS PER DWG D3564-13 REV. D B145930 MATERIAL 304 SHEET 16GA						

Note:

6/8/2016